SUN POWERpak™ Adds Profit to Your VS. System*

VS. SkyKid™

2 Player Interactive

Sun Corporation Of America
2250 Elmhurst Road • Elk Grove Village, IL 60007 • (312) 228-0451

VS. SkyKid™ is Licensed for play on the VS. System by Nintendo®
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SUN POWERpak™

VS. SkyKid

For All VS. UniSystem* Games

- **VS. SkyKid Delivers High Earning Two Player Action**
- **Added Memory Supercharges Your VS. System***
- **On Location Conversion Capability**

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"VS. SkyKid is a prototype. VS. System game being developed by Sun Corporation of America under license from Nintendo."

Sun Corporation Of America

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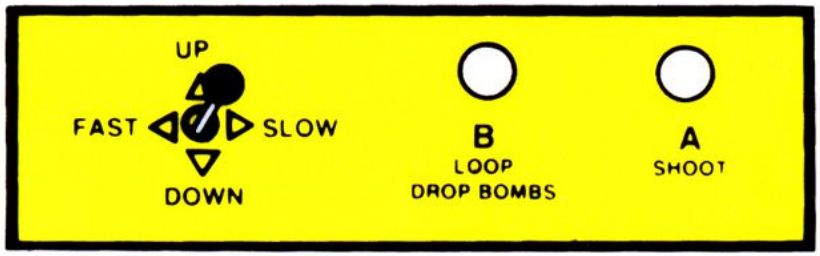
VS. SkyKid

Sun Corporation

To Operate



When hit press up and shoot repeatedly to save your plane.

- Two players can play simultaneously.
- Take off from base and destroy enemy planes.
- Pick up the bomb. The loop button becomes the bomb button.
- Bomb the target — battleships, factories, headquarters.
- Land on the runway — if you miss, you will crash.
- If your partner's plane is crashing, shoot it to save your partner.

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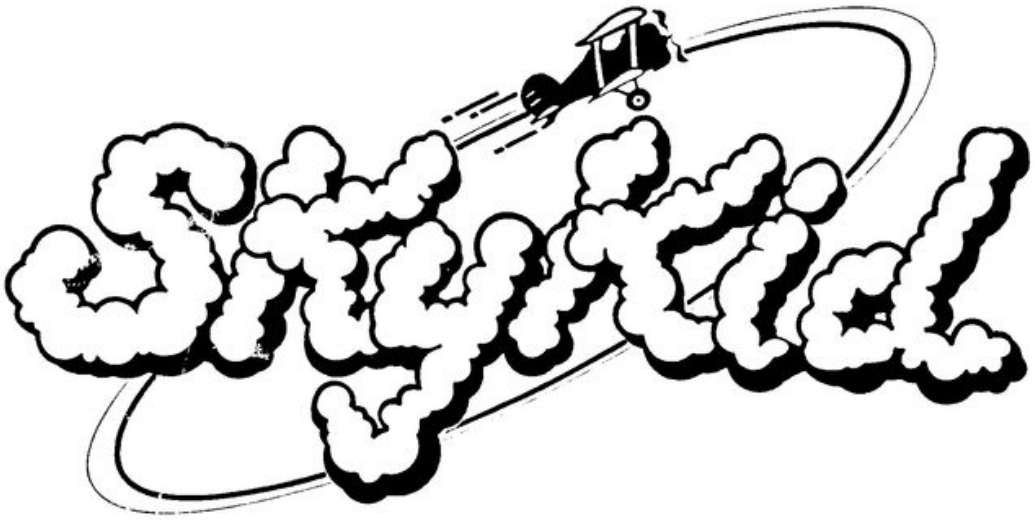
VS.



SINGLE-MONITOR VS. PAK (TM) CONVERSION
FOR
VS. UNISYSTEM (TM) & VS. DUALSYSTEM (TM)

VS. Skykid is licensed for play on the
VS. System (TM) by Nintendo

VS. System (TM), VS. Unisystem (TM), and VS. Dualsystem (TM)
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REV. A

Sun Corporation Of America

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KIT CONTENTS

CARDBOARD HEADER
MARQUEE (FLOPPY)
MANUAL
CLEAR PLEXIGLASS
EXPANDER PC BOARD
PPU CHIP
TABLE GAME INSTRUCTIONS
MOUNTING HARDWARE

VS. Pak (TM), VS. Tennis (TM), VS. Baseball (TM),
and VS. Super Mario Brothers (TM)
are trademarks of
Nintendo of America Inc.

INTRODUCTION TO SKYKID

VS. SKYKID uses an Expander PC board to accommodate the increased capacity of the program memory IC's (EPROMS) of this kit. The Expander PCB plugs quickly and easily into the CPU and PPU sockets of the main Nintendo PC board and can be left installed permanently. The entire Skykid program is on the Expander PCB and no other plug-in memory IC's are required for it on the main Nintendo board. The Expander PCB will not interfere with the installation of future kits. VS. Skykid can be installed by itself in a VS. Unisystem (TM) cabinet, or in conjunction with another VS. Pak (TM) in a VS. Dualsystem (TM) cabinet.

GENERAL INSTALLATION PROCEDURE

Turn off the game, unplug it, and remove the main Nintendo PC board. Place it on a hard, flat surface. Unplug the PPU's at positions 2F and 8f, and the CPU's at 2J and 8J. Set these aside. Depending on the type of cabinet used, you will need one or more of the PPU's and CPU's later.

IMPORTANT! Before installing the Expander PCB, a number of capacitors must be bent downwards toward the main PCB so that their metal tops do not contact the underside of the Expander PCB and cause a short circuit. These capacitors are C3, C11, C30, and C47. Bend these over as much as possible.

Position the Expander PCB on the main Nintendo PCB so that the long pins sit lightly in the PPU and CPU sockets on the main PCB. The mounting holes in the Expander PCB should line up over the holes in the center of the main Nintendo PCB. Be sure ALL the pins on the underside of the Expander PCB are lined up properly in the sockets on the main Nintendo PCB. Then bear down FIRMLY on the Expander PCB so that the pins plug well into the sockets. A considerable amount of force is needed to seat the board properly. You will need to push down on this board several times before it seats correctly. Use the spacer and screw provided to mount the Expander PCB to the main Nintendo PCB; insert the screws from the underside of the main Nintendo PCB.

The next step is determined by the type of cabinet you are using.

VS. UNISYSTEM (TM) WITH SINGLE MONITOR

Remove the old game EPROMS from the main Nintendo PCB sockets at 8A, 8B, 6A, 6B, 6C, and 6D. Put these and the old game PPU away for future re-use. Remove the VS. Skykid PPU from its antistatic bag and plug carefully into socket 6A on the Expander PCB. Take one of the CPU's that you set aside earlier and plug it carefully into socket 6B on the Expander PCB. Make sure that no pins bend as you plug these IC's in, and be careful not to plug them in backwards. The notch on one end of each IC should line up with the notch printed underneath each socket on the Expander PCB.

IMPORTANT! In order for the Player 2 Start button to function, you MUST SOLDER A JUMPER WIRE CONNECTING TRACES 9 AND 10 ON THE EDGE CONNECTOR P2 ON THE MAIN NINTENDO PCB. See illustration. This jumper is only necessary for use in the VS. Unisystem (TM) cabinet.

The dipswitches on the Expander PCB are set at the factory and should not have to be adjusted. However, check to make sure that they are set at 1-7 OFF and 8 ON. Over on the main Nintendo PCB, set dipswitch bank SW2 to the factory-recommended settings on the Dipswitch Settings chart. The board set is now ready for use. Go to the INITIAL CHECKS section before powering up the game.

VS. DUALSYSTEM (TM) CABINET WITH TWO MONITORS
VS. Skykid can be operated along with any other VS. Pak (TM) in a VS. Dual-system (TM) cabinet (EXCEPT VS. Baseball (TM) and VS. Tennis (TM)), either on the right or the left half of the board set. Determine whether you want to install VS. Skykid on the RIGHT or the LEFT half of the board set.

VS. SKYKID ON RIGHT HALF: Remove old game EPROMs from sockets on main Nintendo PCB AT 8A, 8B, 6A, 6B, 6C, and 6D. Put these away for future re-use. Remove the VS. Skykid PPU from its antistatic bag and carefully plug it into socket 6A on the Expander PCB. Take one of the CPU's that you unplugged earlier and carefully plug it into socket 6B on the Expander PCB.

The dipswitches on the Expander PCB are set at the factory and should not have to be adjusted. However, check to make sure that switches 1-7 are OFF and 8 ON. Adjust the dipswitches at SW2 on the main Nintendo PCB to the factory-recommended settings in the Dipswitch Settings chart.

The left half of the board is now open for another VS. Pak (TM). Install the kit on the left half according to that game's conversion instructions. Plug that game's CPU into socket 3B on the Expander PCB, and the PPU into 3A on the Expander PCB. Adjust the dipswitches at SW1 as recommended in the game's manual. The board set is now ready for use; go to the INITIAL CHECKS section before powering up the game.

VS. SKYKID ON LEFT HALF: Remove the old game EPROMs from the sockets at 1A, 1B, 1C, 1D , 2A, and 2C on the main Nintendo PCB and put away for future re-use. Remove the VS. Skykid PPU from its antistatic bag and carefully plug it into socket 3A on the Expander PCB. Unplug the program EPROM PRG-1 in socket 6C on the Expander PCB and move it to socket 3C. Unplug the program EPROM CHA from socket 5A and move it to socket 2A. Take a CPU that you unplugged earlier and plug it carefully into socket 3B on the Expander PCB. Adjust the dipswitches on the Expander PCB to 4 ON and all others OFF. Set the dipswitches at SW1 to the factory-recommended settings in the Dipswitch Settings chart.

The right half of the board is now open for another VS. Pak (TM). Install the kit on the right half of the board set according to that game's conversion instructions. Plug that game's CPU into socket 6B on the Expander PCB, and the PPU into socket 6A on the Expander PCB. Adjust the dipswitches at SW2 on the main Nintendo PCB as recommended in the game's manual. The board set is now ready for use; go to the INITIAL CHECKS section in this manual before powering up the game.

VS. TABLE (TM) WITH TWO MONITORS
Installation instructions are the same as for the VS. Dualsystem (TM). Remove the wire guides from the sides of the board holder and move them; otherwise, the board set will not slide into the board holder correctly.

GRAPHICS

Unscrew the top trim, remove the old marquee, and save it for future re-use. Take out the VS. Skykid marquee plexiglass piece and the marquee. Measure for your cabinet and cut to size. IMPORTANT! Position marquee BEHIND plexiglass piece and tape into place. DO NOT place tape on FRONT of marquee, and DO NOT position marquee in front of the plexiglass piece. The printing is on the FRONT of the marquee and can be damaged or scratched easily.

Re-insert marquee into the game cabinet, but do not replace top trim. Remove VS. Skykid cardboard header from box and fold it. Remove strips to expose adhesive. Position the header to fit under top trim. Replace top trim, and replace the screws.

For VS. Table (TM), remove the plexiglass cover holding the instruction label. Remove the old instruction label and save for future re-use. Insert the square VS. Skykid instruction label and tape into place. Replace plexiglass cover.

INITIAL CHECKS BEFORE POWERUP

Check pins on underside of Expander PCB to see that each pin is plugged into each contact of the PPU and CPU sockets on the main Nintendo PCB.

Check all plug-in IC's to be sure they are not plugged in backwards. The notch on one end of each IC should line up with the notch printed under each socket on the Expander PCB. In addition, check for bent pins. NOTE: Plugging in an EPROM or PPU backwards damages it and voids the warranty.

Be sure dipswitches are all set correctly; do not confuse dipswitch settings for SW1 and SW2 on main Nintendo PCB with settings for dipswitches on Expander PCB.

Make sure there are no old game EPROMS in the sockets on the main Nintendo PCB on the same side of the boards as the VS. Skykid program.

TROUBLESHOOTING AFTER POWERUP

Problem: Game comes up with dark blue screen, no picture, and no sound. Possible causes: Expander PCB not plugged tightly into main PCB; one or more plug-in IC's loose in socket; plug-in IC backwards in socket; bent pins on IC.

Problem: Game comes up with white screen, no picture, no sound. Possible causes: One or more plug-in IC's missing from Expander PCB; cabinet wiring loose; Expander PCB not plugged in tightly enough; bent pins on plug-in IC; other cabinet problem, such as power supply.

Problem: Picture and sound come up OK except that planes and ground targets are wrong characters, OR colors are all wrong. Likely cause: dipswitches are set wrong, either on main Nintendo PCB or on Expander PCB. Doublecheck dipswitches.

Problem: Game works except that Player 2 Start button doesn't work. Probable cause: Main Nintendo PCB requires a jumper between traces 9 and 10 on connector P2. This applies only to VS. Unisystem (TM) single-monitor cabinets.

Problem: Game works OK, except that right coinswitch doesn't work. Likely cause: Programming error on early version of VS. Skykid. Jumper coinswitches together OR install a jumper wire between traces 7 and 8 of connector P1 on the main Nintendo PCB.

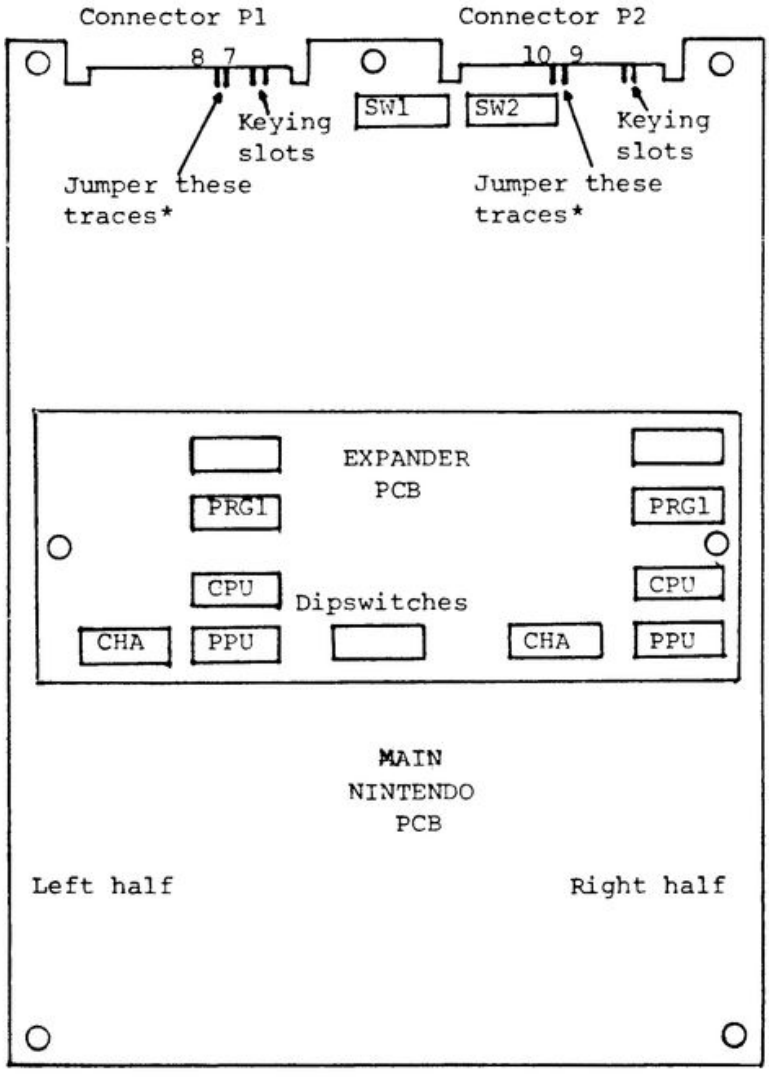
FINAL CHECKS

Make sure cover of FCC cage is installed correctly. Check all buttons, joy-sticks, and coinswitches for proper functioning. Adjust monitor colors and brightness. Adjust the volume to suit the game's location.

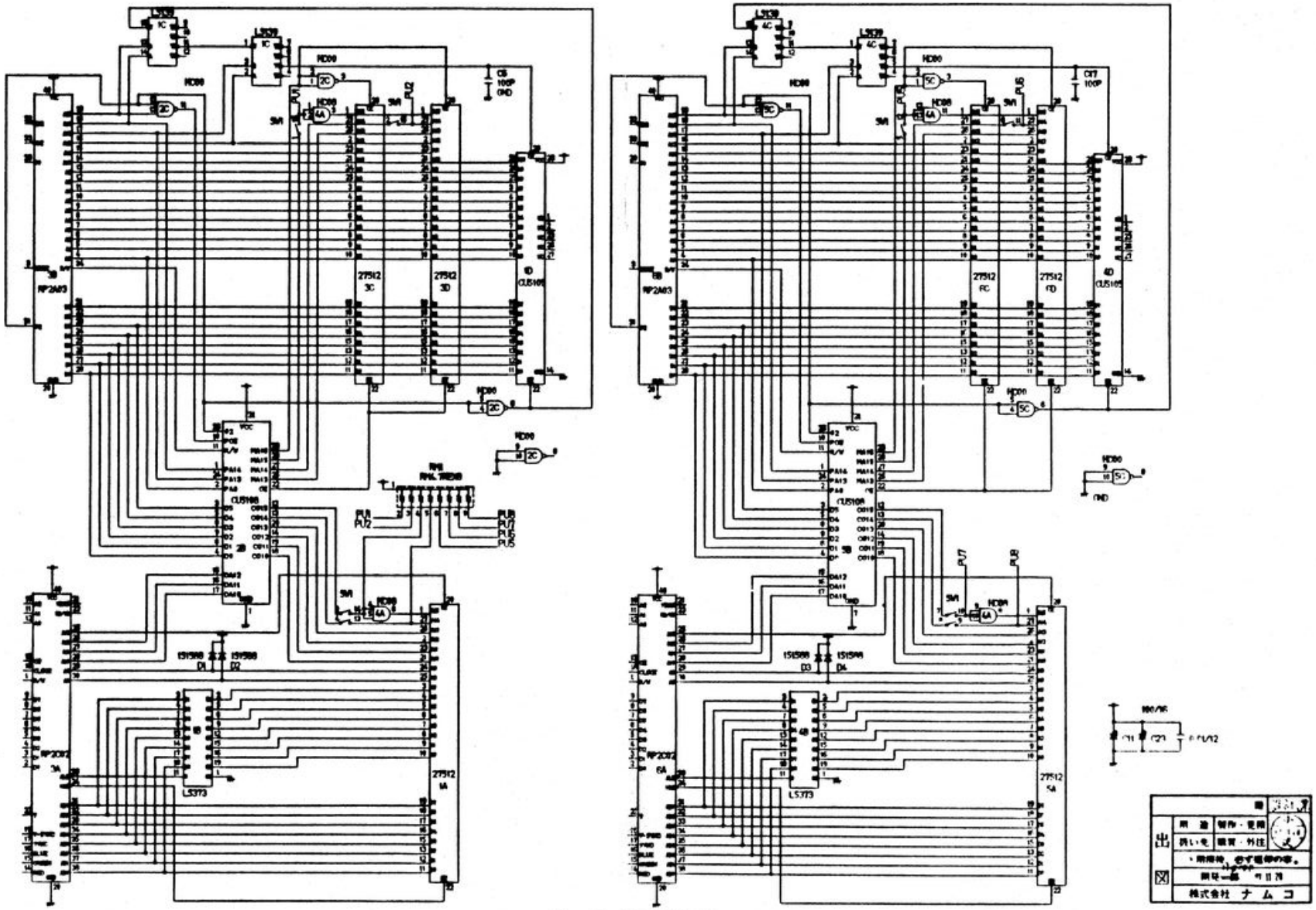
DIPSWITCH SETTINGS

			1	2	3	4	5	6	7	8
DIFFICULTY	EASY	1	OFF	OFF						
		2*	ON	OFF						
		3	OFF	ON						
	HARD	4	ON	ON						
NUMBER OF SKYKIDS	2				OFF					
	3*				ON					
COINS/CREDIT	1/1					OFF	OFF			
	1/2					ON	OFF			
	2/1					OFF	ON			
	3/1					ON	ON			
MUST BE OFF								OFF	OFF	OFF

*INDICATES FACTORY RECOMMENDED SETTINGS.
NOTE: THESE SETTINGS ARE FOR THE DIPSWITCH AT SW2 ON THE MAIN PCB.
IMPORTANT: SWITCHES 6, 7, AND 8 MUST BE OFF.



*NOTE: Jumper these traces only if necessary. See instructions.



注 1. Ω . MF(PF)/V の単位は省略.
2. 74シリーズのTTL(HC-CMOS)の74は 時.
3. CN 23ピンは未接続コネクタで、その4ピンはセラミックコンデンサで接続されている.
4. ICソケットのC1～4, C6～10, C12～16, C18～23.

NAMCO LIMITED					TITLE SYS-2 77168 GAMEPCB回路図 (1/1) DRAW NO. 86051941